

Ecologically Significant Wetlands in the Missouri Headwaters:

**Jefferson, Lower Madison, Lower Gallatin,
and Upper Red Rock River Watersheds**

Prepared for:

Montana Department of Environmental Quality

By:

W. Marc Jones

Montana Natural Heritage Program
Natural Resource Information System
Montana State Library

June 2004



Ecologically Significant Wetlands in the Missouri Headwaters:

Jefferson, Lower Madison, Lower Gallatin, and Upper Red Rock River Watersheds

Prepared for:

Montana Department of Environmental Quality

Contract Number:

202013

By:

W. Marc Jones



© 2004 Montana Natural Heritage Program

P.O. Box 201800 • 1515 East Sixth Avenue • Helena, MT 59620-1800 • 406-444-5354

The preferred citation for this document is as follows:

Jones, W. M. 2004. Ecologically significant wetlands in the Missouri headwaters: Jefferson, lower Madison, lower Gallatin, and upper Red Rock River watersheds. Report to the Montana Department of Environmental Quality. Montana Natural Heritage Program, Helena, MT. 24 pp. + appendices.

SUMMARY

The Montana Natural Heritage Program, in partnership with the Montana Department of Environmental Quality, has completed an inventory of ecologically significant and restorable wetlands in the watersheds of the Missouri River headwaters in southwest Montana. This project identified high quality wetlands in the study area and evaluated their diversity and integrity. Building on previous watershed inventories, this work creates a consistent and comprehensive source of wetland information that can form the basis for effective prioritization of wetland protection and restoration efforts.

This inventory targeted wetlands with intact hydrological functions, representative native plant communities, outstanding wildlife values, and/or rare plant and animal species. Important sources for locating significant wetlands were local expert opinion and aerial photographs. We used standard Heritage Program methodologies to inventory wetlands and to assess site condition, catalog community types, and document rare plant and animal occurrences. Five criteria were used to evaluate each site's ecological significance: (1) condition, which includes degree of hydrologic or geomorphic alteration, quality of native plant communities, and presence of exotic species, (2) landscape context, which includes condition of uplands and hydrologic connectivity between wetland and uplands, (3) diversity, which includes the number of plant communities, structural vegetation types, and hydrologic classes, (4) rarity, which includes the number and

condition of rare plants, animals, or communities, and (5) size of wetland. We then placed sites into one of four categories, ranging from highest quality (A-ranked) to poorest quality (D-ranked).

Twenty-one ecologically significant wetlands were inventoried for this study. Of these sites, four rated as A-ranked wetlands, twelve as B-ranked wetlands, and five as C-ranked wetlands. A-ranked sites were relatively undisturbed to pristine. In general, their natural hydrologic regimes were intact, they supported high quality examples of native plant communities, and they had no or only minor weed populations. The uplands surrounding these sites were largely undisturbed, with minimal human alterations. These wetlands included montane peatlands and two large wetland complexes in the Red Rock Lakes National Wildlife Refuge. In contrast, B-ranked sites had been affected by both on- and off-site human disturbances, although many sites still maintained high functional capacity and supported high quality plant communities. This category included riverine and beaver-influenced wetlands, sloughs, a small montane peatland, and a large groundwater-discharge wetland, Piedmont Swamp. The remaining sites were rated as C-ranked wetlands. These wetlands have been functionally impaired through hydrologic or geomorphic alterations or through land use disturbances in the wetlands or adjacent uplands, and exotic species were widespread at a few sites. These sites included beaver-influenced riverine wetlands and depressional wetlands in the Centennial Valley.

ACKNOWLEDGMENTS

This project was made possible through a U.S. Environmental Protection Agency (EPA) wetland protection grant administered by the Montana Department of Environmental Quality (DEQ), as authorized by Section 104(b)(3) of the Clean Water Act. Lynda Saul at DEQ and Steve Potts at EPA have been instrumental in administering this program, and they deserve special thanks for their continued support of the Montana Natural Heritage Program's wetland inventory initiative.

Many individuals provided information about high quality wetlands in the study area. Special thanks to John Joy (U.S. Forest Service), Pete Husby, Julie Sacks, and Bob Leinard (Natural Resources Conservation Service), Randy Gazda (U.S. Fish and Wildlife Service), Paul Azevedo

(Montana Department of Natural Resources and Conservation), Ken Soderberg and Ray Hagney (Montana Fish, Wildlife & Parks), Chris Phelps (Montana Land Reliance), Tim Swanson and Brian Martin (The Nature Conservancy), Jim Madden (Gallatin Valley Land Trust), Gary Nelson (Jefferson River Watershed Council), and Peter Lesica (Private Contractor). Thanks also to the private landowners who allowed us to inventory wetlands on their property.

Heritage Program staff were essential to the completion of this project. Thanks to Martin Miller and Terrie Kenney for data processing, Paul Hendricks for zoological surveys, Bonnie Heidel for botanical inventories, and Greg Kudray for editing.

TABLE OF CONTENTS

Introduction.....	1
Study Area	3
Physical Setting.....	3
Vegetation and Ecological Processes.....	3
Methods	6
Site Identification and Selection	6
Data Collection	6
Data Management	7
Site and Community Ranking	7
Community Rarity Ranks (State and Global Ranks)	7
Community Viability Ranks	7
Site Ranks	8
Plant Community Classification	9
Nomenclature	10
Results and Discussion	10
Status of Wetland Resources.....	10
A-ranked Wetlands	10
B-ranked Wetlands.....	10
C-ranked Wetlands.....	12
Plant Communities.....	13
Forested Vegetation	13
Scrub-Shrub Vegetation.....	15
Emergent Vegetation	15
Aquatic Bed Vegetation.....	16
Plant Species of Concern	16
Animal Species of Concern.....	18
Conservation Implications	18
Wetlands Not Inventoried	19
How This Information Can Be Used.....	20
Literature Cited	21
Appendix A. Global/State Rank Definitions	
Appendix B. Site Descriptions	
Appendix C. Site Evaluation Criteria	
Appendix D. Plant Community Descriptions	

LIST OF FIGURES

Figure 1. Map of watersheds surveyed by the Montana Natural Heritage Program for high quality wetlands.	2
Figure 2. Map of the study area.	4
Figure 3. Map of locations of surveyed wetlands.	11

LIST OF TABLES

Table 1. Indicators and relative importance of criteria used to rank the ecological and conservation significance of wetland sites.	9
Table 2. Site ranks of wetlands inventoried in the study area.....	12
Table 3. Conservation ranks of wetland and riparian plant communities documented within the study area.	14
Table 4. Special status species associated with wetland or riparian habitats that have been documented as occurring in the study area by the Montana Natural Heritage Program.....	17